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## **CDC Health Advisory**

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### **CDC Issues Interim Recommendations for the Use of Influenza Antiviral Medications in the Setting of Oseltamivir Resistance among Circulating Influenza A (H1N1) Viruses, 2008-09 Influenza Season**

Although influenza activity is low in the United States to date, preliminary data from a limited number of states indicate that the prevalence of influenza A (H1N1) virus strains resistant to the antiviral medication oseltamivir is high. Therefore, CDC is issuing interim recommendations for antiviral treatment and chemoprophylaxis of influenza during the 2008-09 influenza season. When influenza A (H1N1) virus infection or exposure is suspected, zanamivir or a combination of oseltamivir and rimantadine are more appropriate options than oseltamivir alone. Local influenza surveillance data and laboratory testing can help with physician decision-making regarding the choice of antiviral agents for their patients. The 2008-09 influenza vaccine is expected to be effective in preventing or reducing the severity of illness with currently circulating influenza viruses, including oseltamivir-resistant influenza A (H1N1) virus strains. Since influenza activity remains low and is expected to increase in the weeks and months to come, CDC recommends that influenza vaccination efforts continue.

#### **Background Information**

Influenza A viruses, including two subtypes (H1N1) and (H3N2), and influenza B viruses, currently circulate worldwide, but the prevalence of each can vary among communities and within a single community over the course of an influenza season. In the United States, four prescription antiviral medications (oseltamivir, zanamivir, amantadine and rimantadine) are approved for treatment and chemoprophylaxis of influenza. Since January 2006, the neuraminidase inhibitors (oseltamivir, zanamivir) have been the only recommended influenza antiviral drugs because of widespread resistance to the adamantanes (amantadine, rimantadine) among influenza A (H3N2) virus strains. The neuraminidase inhibitors have activity against influenza A and B viruses while the adamantanes have activity only against influenza A viruses. In 2007-08, a significant increase in the prevalence of oseltamivir resistance was reported among influenza A (H1N1) viruses worldwide. During the 2007-08 influenza season, 10.9% of H1N1 viruses tested in the U.S. were resistant to oseltamivir.

Influenza activity has been low thus far this season in the United States. As of December 19, 2008, a limited number of influenza viruses isolated in the U.S. since October 1 have been available for antiviral resistance testing at CDC. Of the 50 H1N1 viruses tested to date from 12 states, 98% were resistant to oseltamivir, and all were susceptible to zanamivir, amantadine and rimantadine. Preliminary data indicate that oseltamivir-resistant influenza A (H1N1) viruses do not cause different or more severe symptoms compared to oseltamivir sensitive influenza A (H1N1) viruses. Influenza A (H3N2) and B viruses remain susceptible to oseltamivir. The proportion of influenza A (H1N1) viruses among all influenza A and B viruses that will circulate during the 2008-09 season cannot be predicted, and will likely vary over the course of the season and among communities. Oseltamivir-resistant influenza A (H1N1) viruses are antigenically similar to the influenza A (H1N1) virus strain represented in 2008-09 influenza vaccine, and CDC recommends that influenza vaccination efforts continue as the primary method to prevent influenza.

Oseltamivir resistance among circulating influenza A (H1N1) virus strains presents challenges for the selection of antiviral medications for treatment and chemoprophylaxis of influenza, and provides additional reasons for clinicians to test patients for influenza virus infection and to consult surveillance data when evaluating persons with acute respiratory illnesses during influenza season. These interim guidelines provide options for treatment or chemoprophylaxis of influenza in the United States if oseltamivir-resistant H1N1 viruses are circulating widely in a community or if the prevalence of oseltamivir resistant H1N1 viruses is uncertain.

## **Interim Recommendations**

Persons providing medical care for patients with suspected influenza or persons who are candidates for chemoprophylaxis against influenza should consider the following guidance for assessing and treating patients during the 2008-09 influenza season (see attached Antiviral Guidance Table 1):

1. Review local or state influenza virus surveillance data weekly during influenza season, to determine which types (A or B) and subtypes of influenza A virus (H3N2 or H1N1) are currently circulating in the area. For some communities, surveillance data might not be available or timely enough to provide information useful to clinicians.
2. Consider use of influenza tests that can distinguish influenza A from influenza B.
  - a. Patients testing positive for influenza B may be given either oseltamivir or zanamivir (no preference) if treatment is indicated.
  - b. At this time, if a patient tests positive for influenza A, use of zanamivir should be considered if treatment is indicated. Oseltamivir should be used alone only if recent local surveillance data indicate that circulating viruses are likely to be influenza A (H3N2) or influenza B viruses. Combination treatment with oseltamivir and rimantadine is an acceptable alternative, and might be necessary for patients that cannot receive zanamivir, (e.g., patient is <7 years old, has chronic underlying airways disease, or cannot use the zanamivir inhalation device), or zanamivir is unavailable. Amantadine can be substituted for rimantadine if rimantadine is unavailable.
  - c. If a patient tests negative for influenza, consider treatment options based on local influenza activity and clinical impression of the likelihood of influenza. Because rapid antigen tests may have low sensitivity, treatment should still be considered during periods of high influenza activity for persons with respiratory symptoms consistent with influenza who test negative and have no alternative diagnosis. Use of zanamivir should be considered if treatment is indicated. Combination treatment with oseltamivir and rimantadine (substitute amantadine if rimantadine unavailable) is an acceptable alternative. Oseltamivir should be used alone only if recent local surveillance data indicates that circulating viruses are likely to be influenza A(H3N2) or influenza B viruses.
  - d. If available, confirmatory testing with a diagnostic test capable of distinguishing influenza caused by influenza A (H1N1) virus from influenza caused by influenza A (H3N2) or influenza B virus can also be used to guide treatment. When treatment is indicated, influenza A (H3N2) and influenza B virus infections should be treated with oseltamivir or zanamivir (no preference). Influenza A (H1N1) virus infections should be treated with zanamivir or combination treatment with oseltamivir and rimantadine is an acceptable alternative.
3. Persons who are candidates for chemoprophylaxis (e.g., residents in an assisted living facility during an influenza outbreak, or persons who are at higher risk for influenza-related complications and have had recent household or other close contact with a person with laboratory confirmed

influenza) should be provided with medications most likely to be effective against the influenza virus that is the cause of the outbreak, if known. Respiratory specimens from ill persons during institutional outbreaks should be obtained and sent for testing to determine the type and subtype of influenza A viruses associated with the outbreak and to guide antiviral therapy decisions. Persons whose need for chemoprophylaxis is due to potential exposure to a person with laboratory-confirmed influenza A (H3N2) or influenza B should receive oseltamivir or zanamivir (no preference). Zanamivir should be used when persons require chemoprophylaxis due to exposure to influenza A (H1N1) virus. Rimantadine can be used if zanamivir use is contraindicated.

Enhanced surveillance for influenza antiviral resistance is ongoing at CDC in collaboration with local and state health departments. Clinicians should remain alert for additional changes in recommendations that might occur as the 2008--09 influenza season progresses. Oseltamivir resistant influenza A (H1N1) viruses are antigenically similar to the influenza A(H1N1) viruses represented in the vaccine, and vaccination should continue to be considered the primary prevention strategy regardless of oseltamivir sensitivity. Information on antiviral resistance will be updated in weekly surveillance reports (available at <http://www.cdc.gov/flu/weekly/fluactivity.htm>).

### **For additional information**

- For more information on antiviral medications and additional considerations related to antiviral use during the 2008-09 influenza season, visit <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.
- For information related to the current influenza surveillance in South Carolina, please visit the SC DHEC influenza surveillance website at: <http://www.scdhec.net/health/disease/acute/flu.htm>

### **DHEC Contact Information for Reportable Diseases and Reporting Requirements**

Reporting of outbreaks/clusters of influenza, influenza positive rapid flu tests, positive virus culture and pediatric deaths ages less than 17 years is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2004 List of Reportable Conditions available at: [http://www.scdhec.gov/health/disease/docs/reportable\\_conditions.pdf](http://www.scdhec.gov/health/disease/docs/reportable_conditions.pdf)

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

## Regional Public Health Offices – 2008

Mail or call reports to the Epidemiology Office in each Public Health Region.

### Region 1

#### **Anderson, Oconee**

220 McGee Road  
Anderson, SC 29625  
Phone: (864) 260-4358  
Fax: (864) 260-5623  
Nights / Weekends: 1-866-298-4442

#### **Abbeville, Edgefield, Greenwood, Laurens, McCormick, Saluda**

1736 S. Main Street  
Greenwood, SC 29646  
Phone: 1-888-218-5475  
Fax: (864) 942-3690  
Nights / Weekends: 1-800-420-1915

### Region 2

#### **Greenville, Pickens**

PO Box 2507  
200 University Ridge  
Greenville, SC 29602-2507  
Phone: (864) 282-4139  
Fax: (864) 282-4373  
Nights / Weekends: 1-800-993-1186

#### **Cherokee, Spartanburg, Union**

PO Box 4217  
151 E. Wood Street  
Spartanburg, SC 29305-4217  
Phone: (864) 596-2227, x- 210  
Fax: (864) 596-3443  
Nights / Weekends: 1-800-993-1186

### Region 3

#### **Chester, Lancaster, York**

PO Box 817  
1833 Pageland Highway  
Lancaster, SC 29721  
Phone: (803) 286-9948  
Fax: (803) 286-5418  
Nights / Weekends: 1-866-867-3886

### Region 3 (continued)

#### **Fairfield, Lexington, Newberry, Richland**

2000 Hampton Street  
Columbia, SC 29204  
Phone: (803) 576-2749  
Fax: (803) 576-2993  
Nights / Weekends: 1-888-554-9915

### Region 4

#### **Clarendon, Kershaw, Lee, Sumter**

PO Box 1628  
105 North Magnolia Street  
Sumter, SC 29150  
Phone: (803) 773-5511  
Fax: (803) 775-9941  
Nights/Weekends: 1-877-831-4647

#### **Chesterfield, Darlington, Dillon, Florence, Marlboro, Marion**

145 E. Cheves Street  
Florence, SC 29506  
Phone: (843) 661-4830  
Fax: (843) 661-4859  
Nights / Weekends: (843) 660-8145

### Region 5

#### **Bamberg, Calhoun, Orangeburg**

PO Box 1126  
1550 Carolina Avenue  
Orangeburg, SC 29116  
Phone: (803) 533-7199  
Fax: (803) 533-7134  
Nights / Weekends: (803) 954-8513

#### **Aiken, Allendale, Barnwell**

1680 Richland Avenue, W. Suite 40  
Aiken, SC 29801  
Phone: (803) 642-1618  
Fax: (803) 643-8386  
Nights / Weekends: (803) 827-8668 or  
1-800-614-1519

### Region 6

#### **Georgetown, Horry, Williamsburg**

1931 Industrial Park Road  
Conway, SC 29526-5482  
Phone: (843) 915-8804  
Fax: (843) 365-0085  
Nights / Weekends: (843) 381-6710

### Region 7

#### **Berkeley, Charleston, Dorchester**

4050 Bridge View Drive, Suite 600  
N. Charleston, SC 29405  
Phone: (843) 953-0060  
Fax: (843) 953-0051  
Nights / Weekends: (843) 219-8470

### Region 8

#### **Beaufort, Colleton, Hampton, Jasper**

219 S. Lemacks Street  
Walterboro, SC 29488  
Phone: (843) 549-1516, x-214  
Fax: (843) 549-6845  
Nights / Weekends: 1-800-614-4698

### DHEC Bureau of Disease Control

#### **Division of Acute Disease Epidemiology**

1751 Calhoun Street  
Box 101106  
Columbia, SC 29211  
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**Health Advisory:** provides important information for a specific incident or situation; may not require immediate action.

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